Guidelines

for Calculus courses

using Stewart book "Calculus, early transcendental functions", 8th edition. The following ISBN numbers are for separate textbooks:

Math 1310, Math 1340, Math 1350, Math 2320
Stewart - ACP Calculus: Early Transcendentals - **Volume 1, 8th edition** + Enhanced WebAssign Printed Access Card for Calculus, Multi-Term
ISBN: 9781337057301

Math 2330, Math 2340, Math 2350
Stewart - Stewart - ACP Calculus: Early Transcendentals - **Volume 2, 8th edition** + Enhanced WebAssign Printed Access Card for Calculus, Multi-Term
ISBN: 9781337044714

Students can also purchase just the access code for courses **Math 1310, 1340, 2330, 2340, 2350**(it comes with the e-book):

The books can be purchased directly from the Cengage Learning microsite for cheaper prices:

Math 1310/1340/1350/2320 – Volume 1

www.cengagebrain.com/course/1723682

Math 2330/2340/2350 — Volume 2

www.cengagebrain.com/course/1722918

**Math 1310:**

In this course students should be introduced to mathematical proofs. You might not require students to do proofs themselves, but you definitely proof theorems in class, such as MVT, some differentiation rules, etc.

Review Chapter 1 (approximately 3 days). Topics include:
1. Polynomials and operations with them.
2. Pythagorean formula, distance formula.
3. Slopes, equations of straight lines.
4. Functions, their graph.
5. Using graphing calculator to work with functions.
6. Trigonometric and inverse trigonometric, exponential, and logarithmic functions.

Chapter 2:
2.1 Tangent lines and velocities
2.2 Limit of a function
2.3 Calculating limits
2.5 Continuity of a function
2.6 Limits at infinity
2.7 Rates of change and derivatives
2.8 Definition of the derivative of a function

Chapter 3:
3.1 Derivatives of polynomial functions
3.2 The Product and the Quotient Rules
3.3 Derivatives of trigonometric functions
3.4 The Chain Rule
3.5 Implicit differentiation
3.6 Derivatives of logarithmic functions
3.7 Applications of derivatives
3.8 Exponential growth and decay
3.9 Related rates
3.10 Linear approximation

Chapter 4: sections 4.1 – 4.9
4.1 Maximum and minimum values
4.2 The mean value theorem
4.3 Derivatives through the graphs
4.4 Indeterminate forms
4.5 Curve sketching
4.7 Optimization problems
4.9 Anti-derivatives

Chapter 5: sections 5.1 – 5.5

5.1 Areas under the curves

5.2 The definite integral

5.3 The Fundamental Theorem of Calculus

5.4 Indefinite integrals

5.5 Integration by substitution

Chapter 6: sections 6.1, 6.2,

      6.1 Areas between the curves

      6.2 Calculating volumes with the integrals

Optional topics:

2.4 Precise definition of a limit
3.11 Hyperbolic functions
4.8 Newton's Method
6.3 Volumes by cylindrical shells
6.3 Work
6.5 Average value of a function

__Math 1340:__

Chapter 1
Chapter 2: sections 2.1 – 2.8
Chapter 3: sections 3.1 – 3.10, optional 3.11

__Math 1350:__

Chapter 3: review differentiation rules and sections 3.7, 3.8, 3.9.
Chapter 4: sections 4.1 – 4.9
Chapter 5: sections 5.1 – 5.5
Chapter 6: sections 6.1, 6.2, 6.5. If time permits, include sections 6.3, 6.4

__Math 2320:__

Many important concepts, including additional integration techniques, differential equations, polar coordinates, parametric equations. Perhaps, most important part of the course is infinite series, including power series. Students should be able to do some simple proofs themselves.

Chapter 7: sections 7.1 – 7.8

Chapter 8: sections 8.1, 8.2 (optional 8.3 and 8.5)
Chapter 9: sections 9.1 – 9.4,
Chapter 10: sections 10.1 – 10.6
Chapter 11: sections 11.1 – 11.11

Math 2350:

Try to incorporate EWA graphs and applets in class, they are extremely helpful, especially in 3D.

Chapter 12: sections 12.1 – 12.6
Chapter 13: sections 13.1 – 11.4
Chapter 14: sections 14.1 – 14.7
Chapter 15: sections 15.1 – 15.10
Chapter 16: sections 16.1 – 16.9 (this chapter in actually Math 2340, which is part of Math 2350, but not Math 2330)